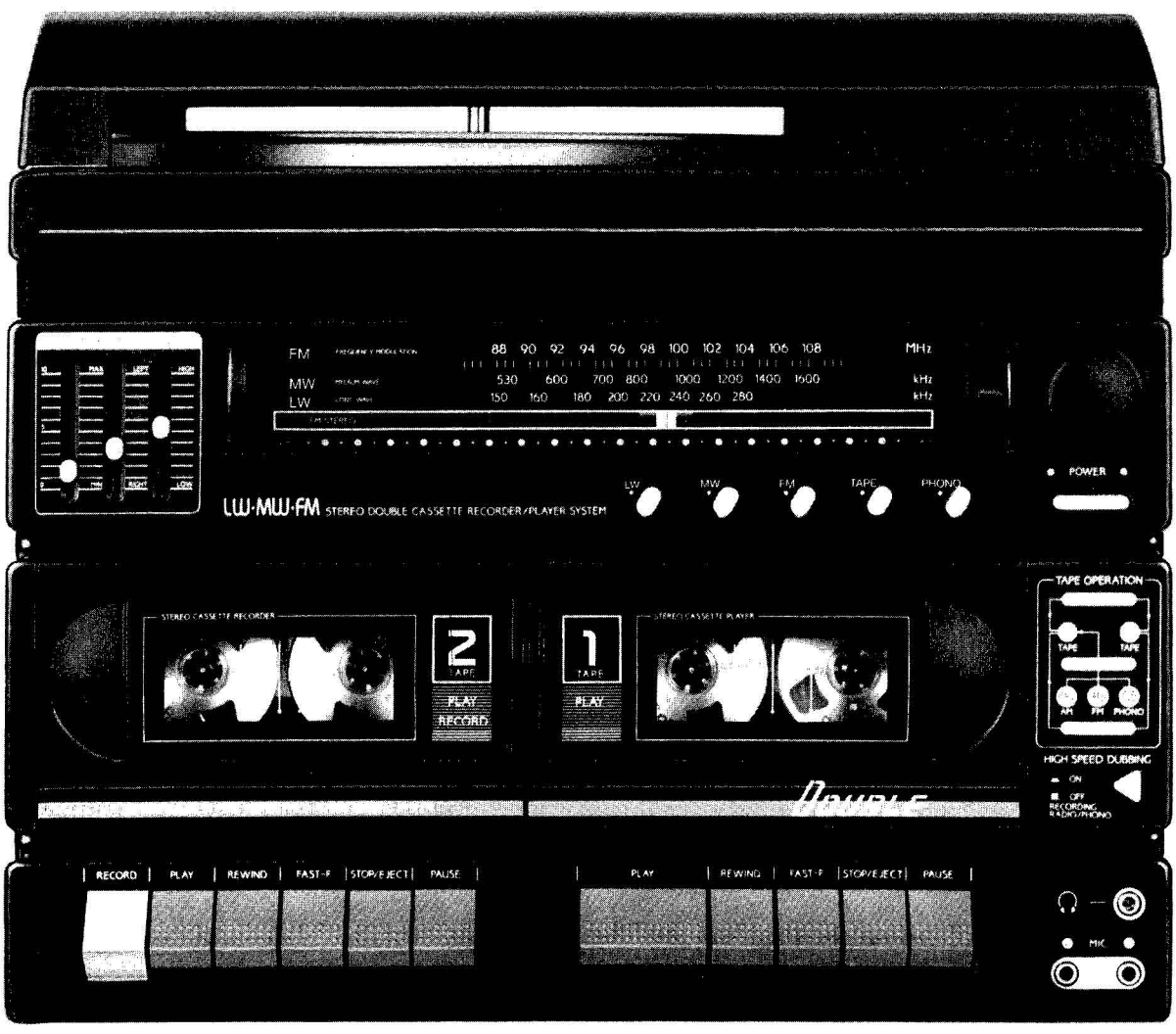
Serviceanweisung

Service manual

MIDI 2100

Ident-Nr. 37605 schwarz
Ident-Nr. 37603 rot
Ident-Nr. 37604 weiß

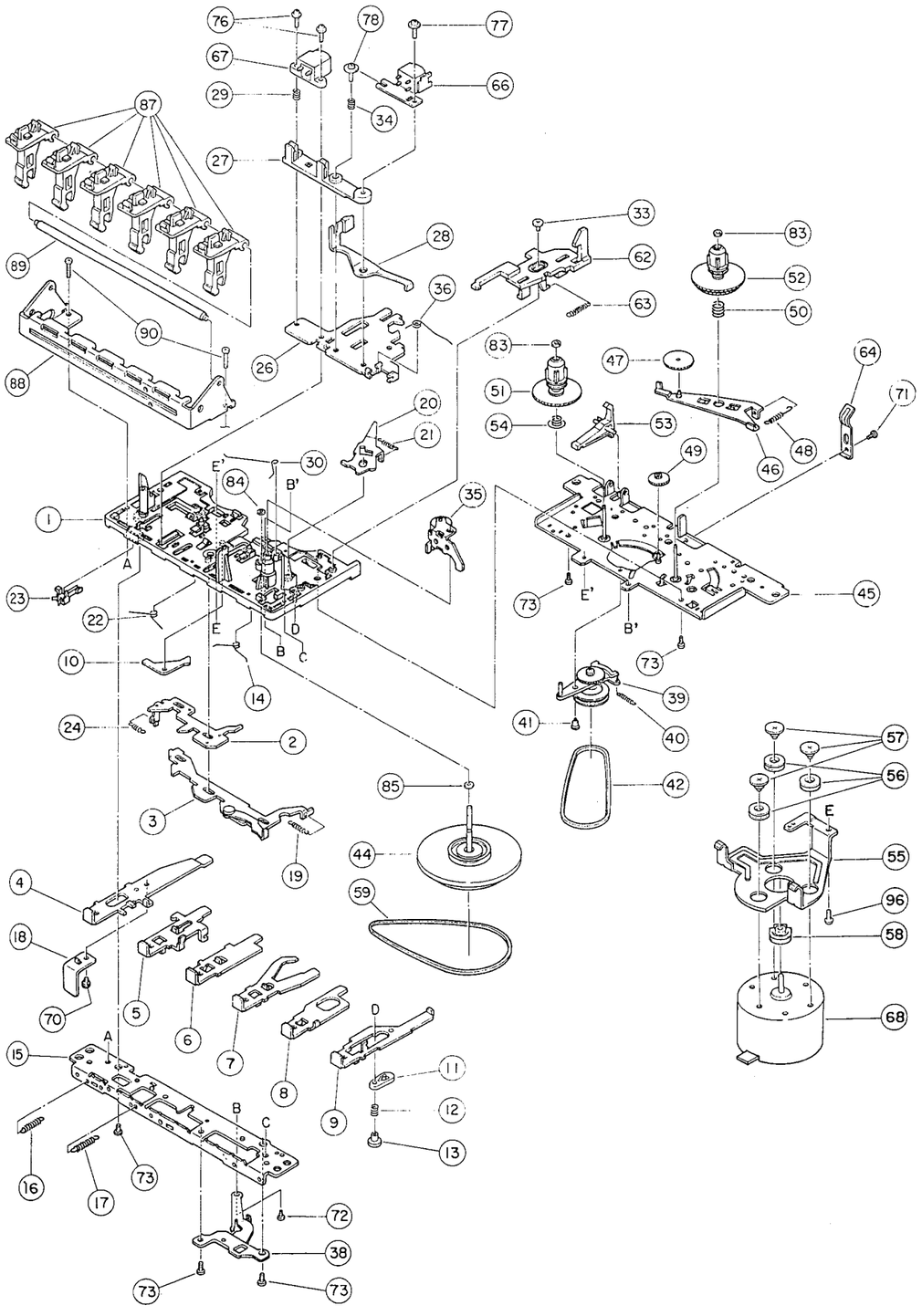


Ersatzteilliste
Spare parts list

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe
3760800	Lautsprecherbox schwarz	Speakerbox black		D2
3760600	Lautsprecherbox burgunderrot	Speakerbox red		D2
3760700	Lautsprecherbox weiß	Speakerbox white		D2
3778800	Frontblende schwarz	Front cabinet black	1	C7
3778900	Gehäuse schwarz	Main cabinet black	2	D0
3779000	Abdeckhaube schwarz	Dust cover black	3	C3
3779100	Cassettenfachklappe links schwarz	Cassette door left black	4	B1
3779200	Cassettenfachklappe rechts schwarz	Cassette door right black	5	B1
3790500	Frontblende rot	Front cabinet red	1	C7
3790600	Gehäuse rot	Main cabinet red	2	D0
3790700	Abdeckhaube rot	Dust cover red	3	E3
3790800	Cassettenfachklappe links rot	Cassette door left red	4	B1
3790900	Cassettenfachklappe rechts rot	Cassette door right red	5	B1
3789900	Frontblende weiß	Front cabinet white	1	C7
3790000	Gehäuse weiß	Main cabinet white	2	D0
3790100	Abdeckhaube weiß	Dust cover white	3	C3
3790200	Cassettenfachklappe links weiß	Cassette door left white	4	B1
3790300	Cassettenfachklappe rechts weiß	Cassette door right white	5	B1
3779900	Drehknopf Abstimmung schwarz	Tuning knob black	13	A2
3791000	Drehknopf Abstimmung rot	Tuning knob red	13	A2
3790400	Drehknopf Abstimmung weiß	Tuning knob white	13	A2
3779300	Taste Cassette grau (9)	Knob cassette grey	6	A1
3779400	Taste Cassette purpur (1)	Knob cassette purple	7	A1
3779500	Taste Cassette „PLAY" (1)	Knob cassette "play"	8	A2
3779600	Cassettenfach-Fenster links	Tape window left	9	A7
3779700	Cassettenfach-Fenster rechts	Tape window right	10	A7
3779800	Skalenblende	Dial window	12	A7
3780000	Knopf Schieberegler	Slide knob	14	A1
3780100	Gehäusefuß	Rubber foot	15	A1
3780200	Knopf „High Speed"	Knob "high speed"	17	A1
3780300	Knopf „Function"	Knob "function"	18	A1
3780400	Knopf „Power"	Knob "power"	19	A1
3780500	Skalenzeiger	Dial pointer	21	A2
3780600	Aufnahmehebel	Record lever	22	A2
3780700	Feder Cassettenfach	Door spring	24	A1
3780800	Dämpfer Cassettenfach	Gear assemply	25	A7
3780900	Skalenrad	Dial drum	26	A2
3781000	Feder Skalenrad	Dial spring	27	A1
3781100	Rädchen Skalenseil	Sial pulley	28	A1
3781200	Gehäuseboden	Bottom cover	31	B0
3781300	Scharnier Abdeckhaube (1)	Hinge dust cover	34	B0
3783000	IC TA 7358 AP		IC101	A9
3783100	IC TA 7640 AP		IC102	B2
2496400	IC TA 7343		IC103	B1
3783200	IC TA 7238 AP		IC401	B4
3783300	IC BA 3416 BL		IC202	B4
3783400	IC BA 3308		IC203	B3
3783500	Trans KTC 1815 A-BL		202,8	A5
2635900	Trans KTC 2120 Y		201,9	A3
1123900	Diode 1 N 4002		401,4	A1
1124100	Diode 1 N 4148			A2
2321400	Diode ZPD 9,1		ZD401	A1
3783600	Kapazitätsdiode KDS 18 A		D101	A2
3783700	LED-Klr 206 E (rot)		LD 1	A3
3783800	Poti Klang, Lautstärke 2×50 K	VR, tone, volume		B1
3783900	Poti Balance 250K	VR balance		B0
3784000	Trimmpoti 100 Ohm	SVR	SVR01	A2
3784100	Trimmpoti 5K	SVR	202-5	A2
0125300	Trimmpoti 10K lin. lieg.	SVR	VR101	A3
2649300	Netzschalter CV 350	Switch power	S8	B5
3784200	Quellenschalter	Switch function	S1–5	B8
3784300	Schalter High Speed	Switch high speed	S7	A7
3784400	AW-Schalter	Switch record/play	S6	A9
3784500	Buchse Kopfhörer	Jack headphone		B3
3784600	Buchse Mikrofon (2)	Jack microphone		A5
3784700	Buchse DIN Lautsprecher (2)	Jack DIN speaker		A6
3784800	Drehkondensator	Variable capacitor		C1
3784900	Trimmer-Kondensator 50PF	Trimmer capacitor	501,2	A4
3785000	Filter SK 107 M2 FM		CF101	A6
3785100	Filter AM BFC FL-445		CF102	A4
3785200	Filter B.P.F.		101	A4
3785300	Antenne AM	AM bar antenna	T103	B0
3785400	Spule LW Osz.	Coil	T106	A3
3785500	Spule MW Osz.	Coil	T501	A3
3785600	Spule Bias	Coil	T201	A5
3785700	Filter FM 1ST		T102	A3
3785800	Filter FM DET		T105	A3
3785900	Filter AM 1ST		T104	A3
3786000	Filter AM DET		T107	A3
3786100	Netztrafo VDE 54-42P-VF	Power transformer		C5

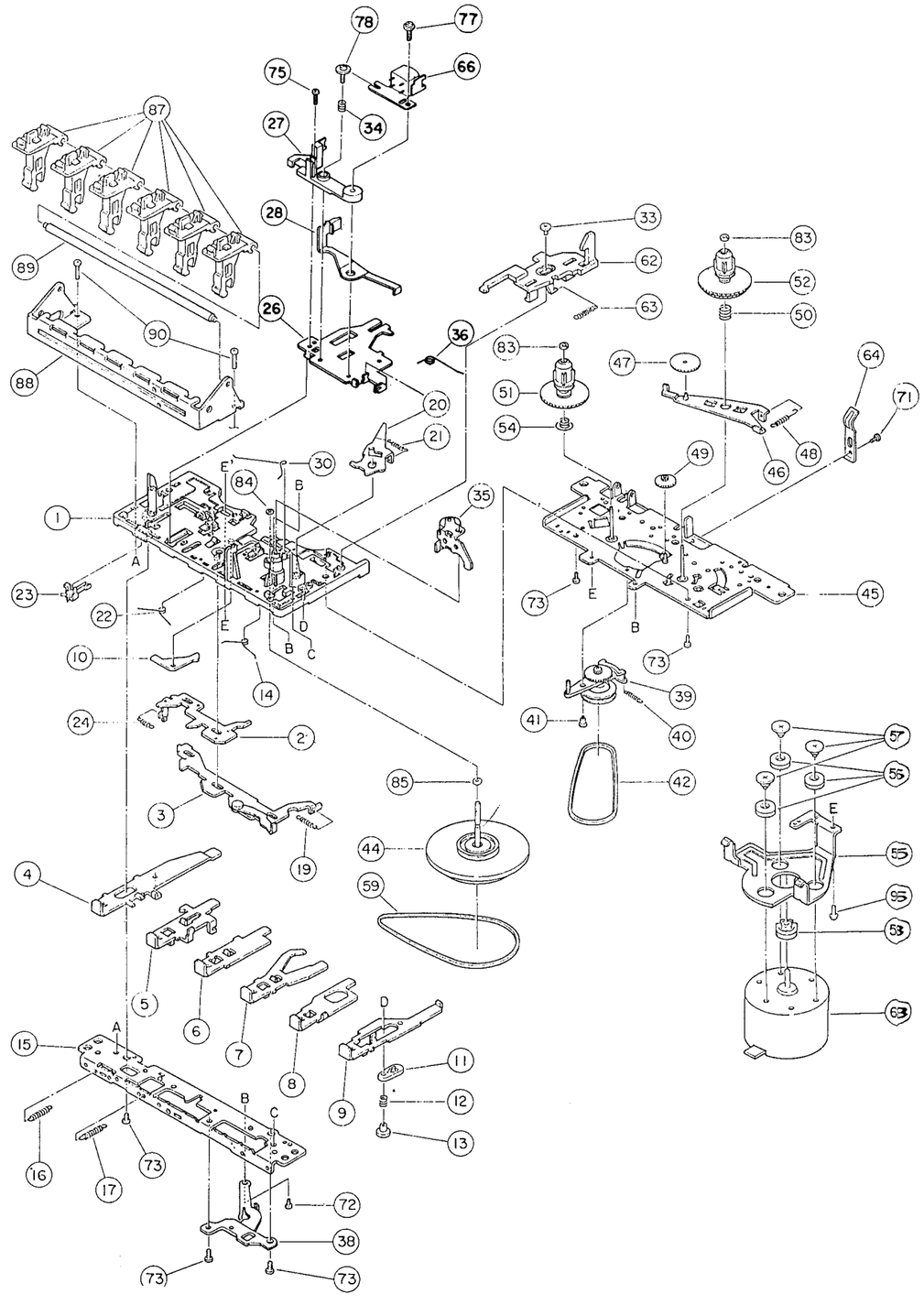
Explosionsdarstellung Cassettenmechanik 2 (Aufnahme/Wiedergabe)

Exploded view cassette-mechanism 2 (Record/Play)



Explosionsdarstellung Cassettenmechanik 1 (Wiedergabe)

Exploded view cassette-mechanism 1 (Play)



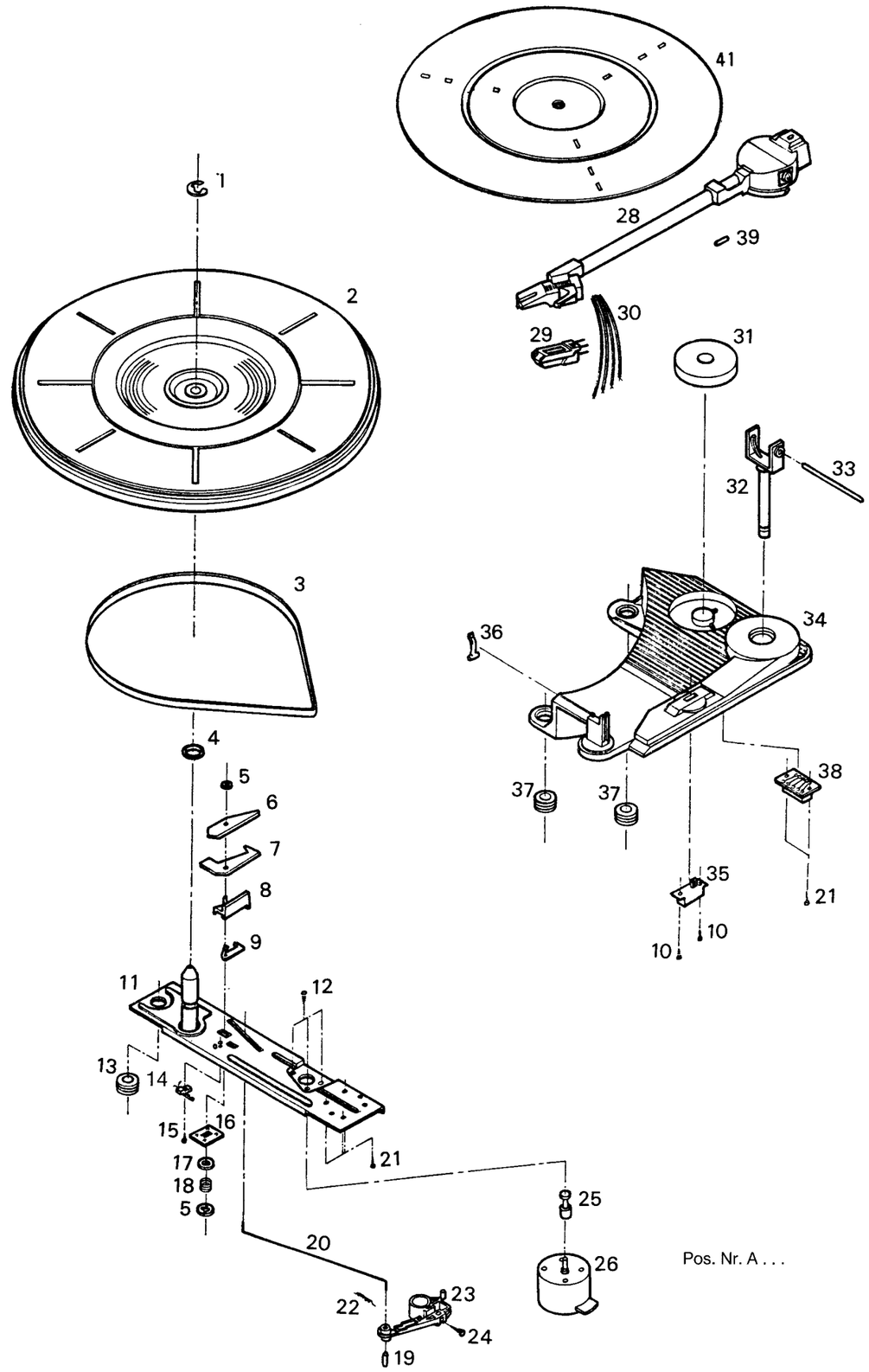
Ersatzteilliste Plattenspieler

Spare parts list record player

Bestell-N.-Part. No.	Bezeichnung	Description	Pos.-Nr./Ref. No.	Preisgruppe
3782000	Plattenspieler kpl.	Player assembly	35	
1414200	Sprengring	E-Ring	A1	A1
3782100	Plattenteller (grau)	Turntable (grey)	A2	B4
3782200	Antriebsriemen	Belt	A3	A6
3782300	Scheibe (Nylon)	Nylon washer	A4	A0
3782400	Sicherungsring	Retainer	A5	A0
3782500	Auslösehebel	Trip pail	A6	A1
3782600	Kupplungsscheibe	Clutch plate	A7	A1
3782700	Schieber	Slider	A8	A1
3782800	Fangschieber	Catch slider	A9	A0
3782900	Lagergummi	Grommet	A3,37	A1
3786500	Motorschalter	Leaf switch	A14	A3
3786600	Feder (Schieber)	Spring slider	A18	A0
3786700	Schubstange	Trip	A20	A1
3786800	Feder Steuerhebel	Spring control lever	A22	A0
3786900	Steuerhebel	Control lever	A23	A2
3787000	Motor 12V		A26	C2
3787100	Pulley Motor		A25	A2
3787200	Tonarm	Tonearm	A28	A6
3787300	Tonarmgabel	Gimbal	A32	A1
3787400	Schalter 45–33	Switch	A35	A2
3787500	Tonarmriegel	Lock tonearm	A36	A0
3787600	Plattentellergummi	Rubber mat	A41	B2
3284600	Keramik-System	Cartridge		B6
3284700	Abtastnadel	Stylus		B3

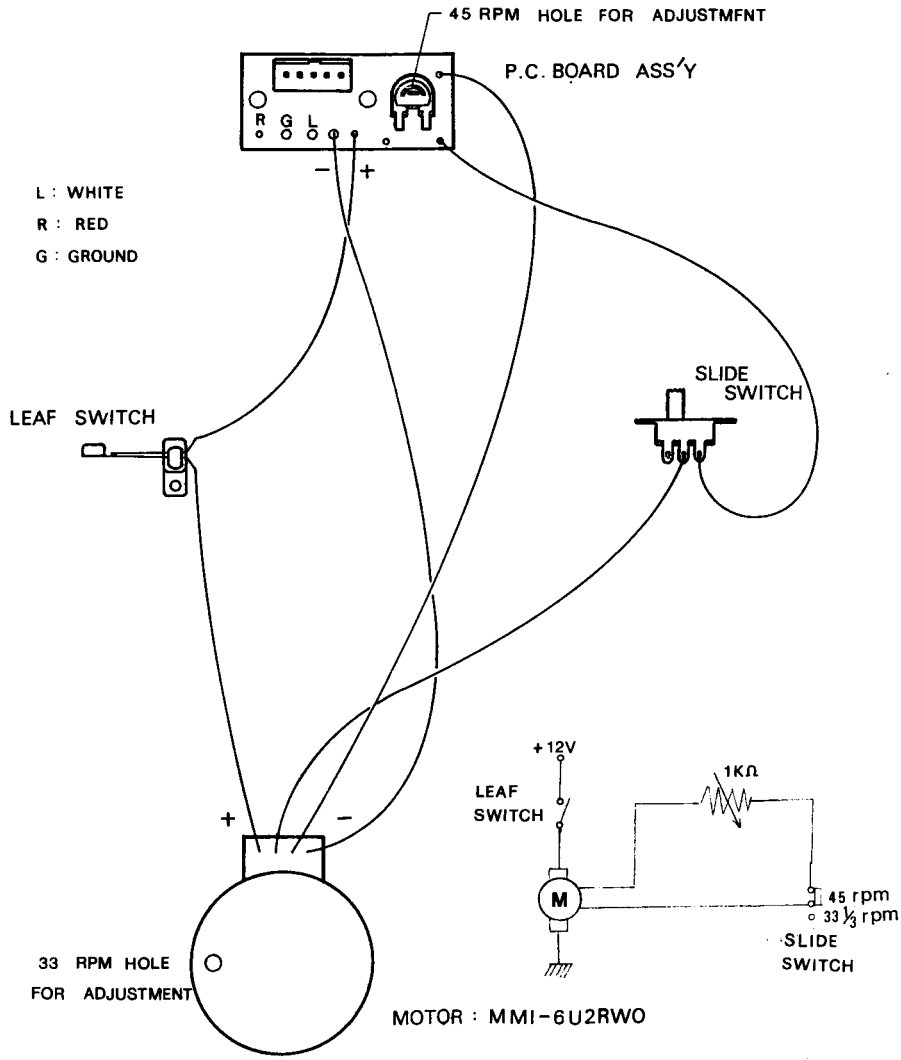
Explosionsdarstellung Plattenspieler

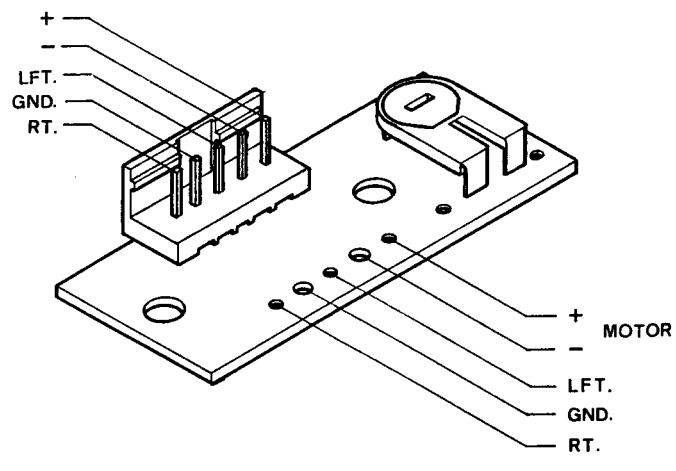
Exploded view record player



Pos. Nr. A . . .

Schaltbild Plattenspieler
Circuit diagram record player

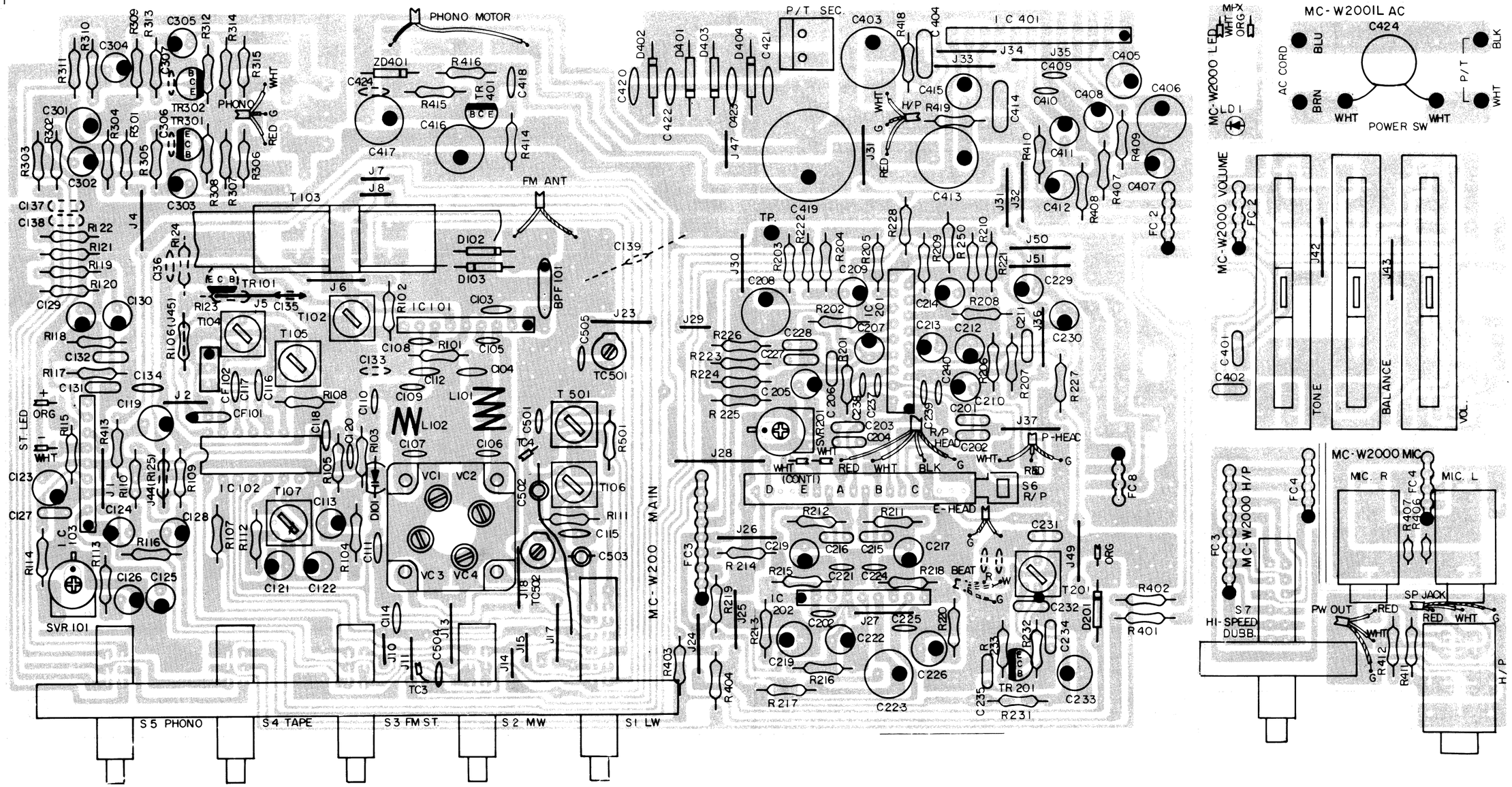




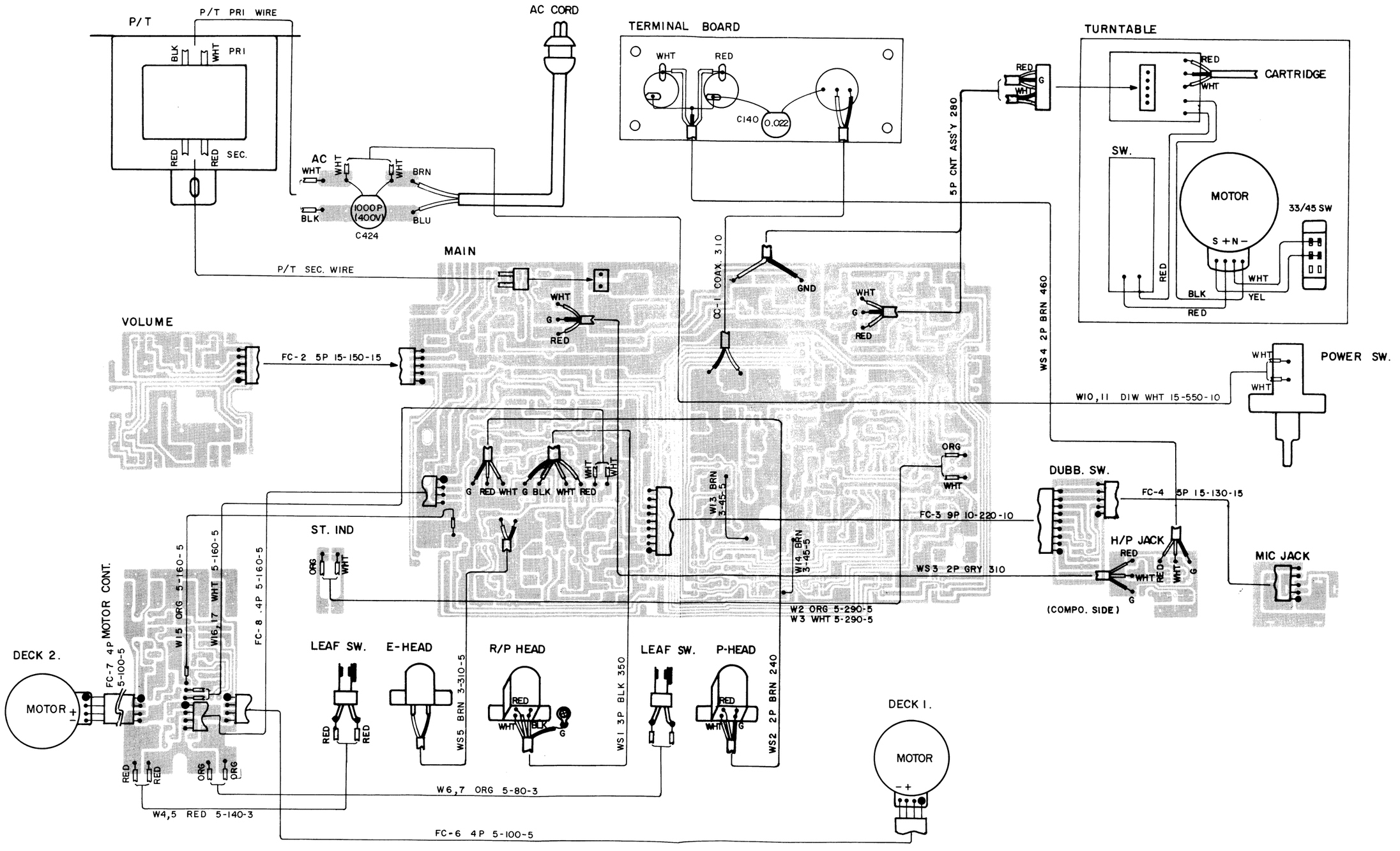
CONNECT SIGNAL WIRES OF CARTRIDGE

Grundplatine
Main P.C.B.

Bestückungsseite
Top view



Verdrahtungsplan
Wiring diagram



4. CASSETTE TAPE ADJUSTMENT

Circuit to be adjusted	Measuring instrument arrangement	Step	Adjust Point	Adjustment
Recording bias	Connect frequency counter and VTVM to TP9	1		Check frequency 56–64 KHz
		2		Reading on VTVM should be 18 V

MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment:
   a) Connect the equipments as per Fig. 7 to adjust the tape speed with test tape (recorded at 3 kHz).
   b) Set Band Selector Switch to Tape and set volume at standard output level.
   c) Adjust semi-fixed resistor (installed inside motor) for frequency counter indicated 3 kHz.
2. Tape Azimuth Adjustment:
   a) Connect the equipments as per Fig. 7 to adjust the tape azimuth with test tape (recorded at 6.3 kHz).
   b) Set Band Selector Switch to Tape and set volume at standard output level (50 mW, 4 Ohm), equalizer control at center-position.
   c) Adjust the azimuth adjustment screw of left side of Record/play head for maximum output.

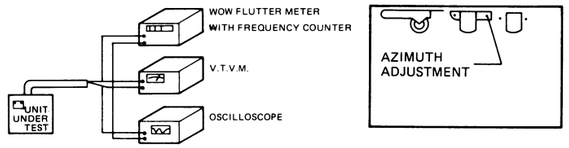
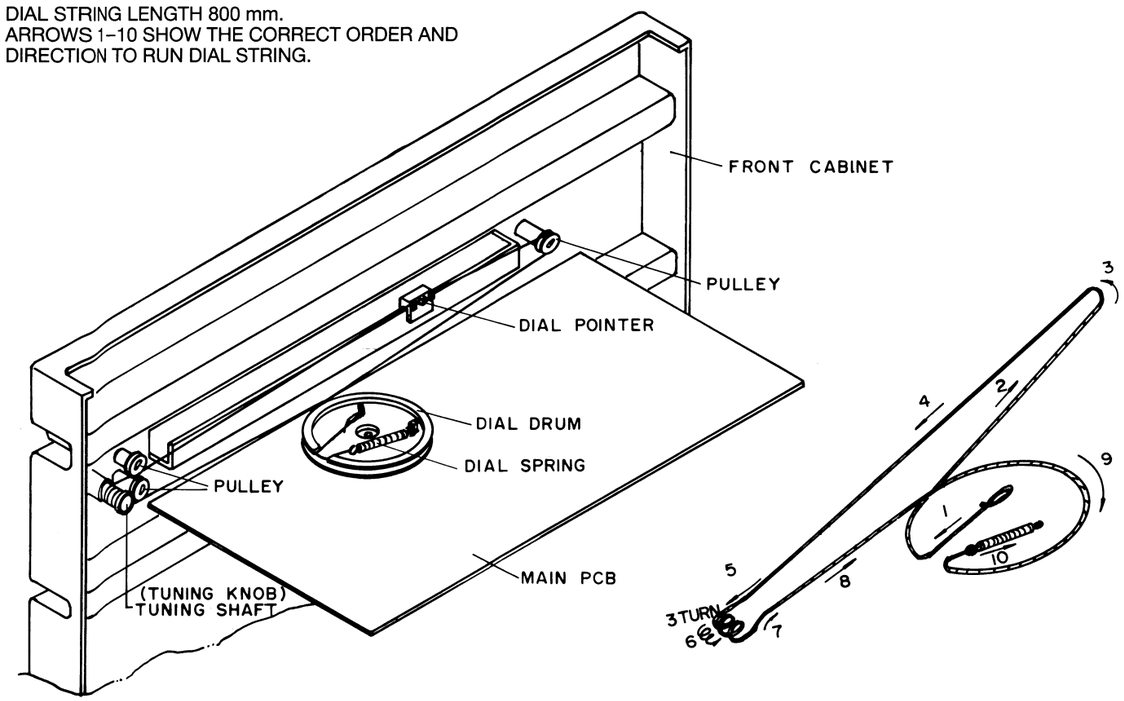


Figure 7. TAPE SPEED AND AZIMUTH ADJUSTMENT

Seillaufplan
Stringing diagram

1. DIAL STRING LENGTH 800 mm.
2. ARROWS 1–10 SHOW THE CORRECT ORDER AND DIRECTION TO RUN DIAL STRING.



Ersatzteilliste Cassettenmechanik
Spare parts list cassette-mechanism

Bestell-N.-Part. No.	Bezeichnung	Description	Pos.-Nr./Ref. No.	Preisgruppe
3781700	**Cassettenmechanik Wiedergabe 1**	**Cass.-Mech. assembly playback 1**		D6
3781800	**Cassettenmechanik A/W 2**	**Cass.-Mech. assembly R/P 2**		D7
3242000	Pausenrasthebel	Pause lever	11	A5
3224100	Feder Pausenrasthebel	Pause lever spring	12	A3
3242200	Stopper Pausenrasthebel	Pause stopper	13	A2
3242300	Feder Tastenhebel (Stop/Pause)	Button lever spring	14	A3
3220200	Feder Aufnahmehebel	Button lever spring	16	A0
3242500	Feder Starthebel	Play button lever spring	17	A3
3242600	Feder Auslösehebel	Actuator spring	19	A3
3242700	Feder Hebel	Auto lever spring	21	A3
3242800	Feder Tastenhebel (Vor-, Rücklauf)	Button lever spring	22	A3
3242900	Motorschaltkontakt	Leaf switch	23	A9
3243100	Stophebel komplett	Sensing plate assembly	28	B0
3243300	Feder Kopfträgerplatte	Head panel spring	30	A3
3243400	Schraube BA-Rolle	PME Screw	33	A2
3243500	Feder A/W-Kopf	Spring	34	A3
3243600	Bandandruckrolle komplett	Pinch roller assembly	35	B6
3243700	Feder BA-Rolle	Pinch roller spring	36	A3
3220400	Rutschkupplung	RF Pulley arm assembly	39	A6
3243900	Feder Rutschkupplung	RF Pulley arm spring	40	A3
3244000	Schraube Rutschkupplung	RF arm collar screw	41	A2
3220500	Riemen Rutschkupplung	RF belt	42	A4
3244200	Schwungmasse komplett	Flywheel assembly	44	C2
3244300	Wickeltellerträgerplatte	Reel base assembly	45	B4
3244400	Zwischenzahnradarm	Take up gear plate assembly	46	B0
3244500	Zwischenzahnrad	Take up roller gear	47	A5
3244600	Feder Zwischenzahnrad	TG plate spring	48	A3
3244700	Zahnrad Vorlauf	FF gear	49	A5
3244800	Feder Wickelteller rechts	Back tension spring	50	A3
3244900	Wickelteller links	Supply reel assembly	51	B2
3245000	Wickelteller rechts	Take up reel assembly	52	B2
3245100	Aufnahmesperrhebel	Record safety lever	53	A5
3420600	Feder Wickelteller links	Back tension spring	54	A0
3245300	Gummipuffer Motor	Motor rubber	56	A2
3245400	Schraube Motor	Motor collar screw	57	A2
3245600	Antriebsriemen	Main belt	59	B4
3245700	Gleithebel Eject	Eject slide lever	62	A5
3245800	Feder Hebel Eject	Eject slide lever spring	63	A3
3245900	Cassettenandruckfeder	Pack spring	64	A5
3420800	A/W-Kopf	R/P head	66	C3
2157800	Löschkopf	Erase head	67	B6
3781900	Antriebsmotor Tape	Motor Tape	68	B8
3246000	Sicherungsscheibe Zahnrad	P. washer cut 1.2 × 3 × 0.25		A0
3246100	Sicherungsscheibe Wickelteller	P. washer cut 1.2 × 3 × 0.4	83	A0
2146200	Sicherungsscheibe Schwungmasse	P. washer cut 1.55 × 3.8 × 0.5	84	A0
3421200	Tastenhebel (6)	Operation lever	87	A1

Abgleichanweisung

Alignment procedure

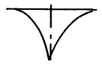
INSTRUMENTS AND TOOLS

1. AM signal generator.
2. FM signal generator.
3. IF sweep generator with marker.
4. Oscilloscope.
5. Output meter (VTVM).
6. FM MPX signal generator.
7. Frequency counter.
8. Distortion meter.
9. Nonmetalic alignment tools.
10. Audio signal generator.

IMPORTANTS

1. Check the power source voltage.
2. Set the "function" switch to a band to be aligned.
3. The "volume" control should be at maximum (unless otherwise noted).
4. Connect the negative leads of the signal source and output indicator to the chassis ground unless otherwise specified.
5. The signal input should be kept as low as possible to avoid AGC and AFC action.
6. The standard modulation is of 30% amplitude with 1,000 Hz signal for AM and is of 22.5 kHz deviation with 1,000 Hz signal for FM.

1. AM ADJUSTMENT

CIRCUIT TO BE ADJUSTED	MEASURING INSTRUMENT ARRANGEMENT	STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	ADUSTMENT
IF	AM sweep generator with loop antenna. Let the AM ANT coil close to generator ANT, and take out the signal from TP4, TP5.	1	468 kHz	Tuning gang fully closed.	T 104 (AM IFT): Adjust for maximum output 
		2	Repeat 1 until no further improvement can be made.		

(A) LW

Band LW	AM signal generator with loop antenna. Output meter (VTVM) across 4-Ohm load. (See Fig. 2.)	3	145 kHz (1000 Hz mod.)	Tuning gang fully closed.	T106 (LW osc. coil): Adjust for maximum output.
		4	315 kHz (1000 Hz mod.)	Tuning gang	TC502 (LW osc. trimmer): Adjust for maximum output.
		5	Repeat steps 3 and 4		
Tracking	AM signal generator with loop antenna. Output meter (VTVM) across 4-Ohm load. (See Fig. 2.)	6	180 kHz	Tune to signal	L104 (LWV ant. coil): Adjust coil on ferrite core for maximum output.
		7	340 kHz	Tune to signal	TC501 (LW ant. trimmer): Adjust for maximum output.
		8	Repeat steps 6 and 7 several times.		

(B) MW

Band MW	AM signal generator with loop antenna. Output meter (VTVM) across 4-Ohm load. (See Fig. 2.)	3	515 kHz (1000 Hz mod.)	Tuning gang fully closed.	T501 (MW osc. coil): Adjust for maximum output.
		4	1650 kHz (1000 Hz mod.)	Tuning gang	TC (MW osc. trimmer): Adjust for maximum output.
		5	Repeat steps 3 and 4		
Tracking	AM signal generator with loop antenna. Output meter (VTVM) across 4-Ohm load. (See Fig. 2.)	6	600 kHz	Tune to signal	L103 (MW ant. coil): Adjust coil on ferrite core for maximum output.
		7	1400 kHz	Tune to signal	TC (MW ant. trimmer): Adjust for maximum output.
		8	Repeat steps 6 and 7 several times.		

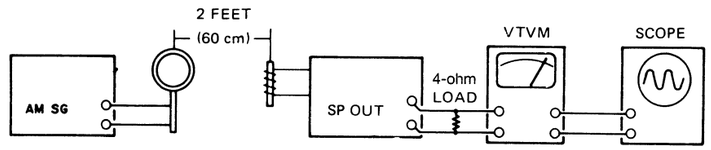


Fig. 2. AM BAND, TRACKING

2. FM ADJUSTMENT

CIRCUIT TO BE ADJUSTED	MEASURING INSTRUMENT ARRANGEMENT	STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	ADJUSTMENT
IF	IF sweep generator with marker to FM TP2. Oscilloscope across TP4 (See fig. 3.)	1	10.7 MHz	Tuning gang fully closed.	T102 (FM IFT): Adjust for maximum symmetrical response with 10.7 MHz at center point.
		2	10.7 MHz	Tuning gang fully closed.	T105 (FN IFT): Adjust for straightness and symmetry of "S" curve with 10.7 MHz marked at zero crossover.
		3	88 MHz (1000Hz)	Repeat step 1 and 2 as necessary to obtain maximum gain and selectivity.	
Local OSC	FM signal generator to FM ant., terminal through 300 Ohm antenna matching network. Output meter (VTVM) across 4-Ohm load. (See Fig. 4.)	4	87.38 MHz (1000 Hz mod)	Tuning gang fully closed.	L102 (FM osc. coil): Adjust for maximum output.
		5	108.25 MHz (1000 Hz mod)	Tuning gang fully open	TC1 (FM osc. trimmer): Adjust for maximum output
		6		Repeat steps 4 and 5 several times.	
RF AMP	FM signal generator to FM ant terminal through 300 Ohm antenna matching network. Output meter (VTVM) across 4-Ohm load. (See fig. 4.)	7	90 MHz (1000 Hz mod)	Tune to signal.	L101 (FM RF coil): Adjust for maximum ouput.
		8	106 MHz (1000 Hz mod)	Tune to signal.	TC2 (FM RF trimmer): Adjust for maximum output.
		9		Repeat steps 7 and 8 to obtain suitable sensitivity at 90 MHz and 106 MHz	

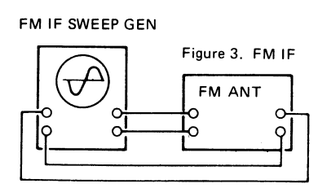


Figure 3. FM IF

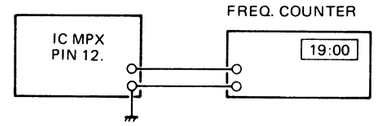


Figure 5. 19kHz PILOT ADJUSTMENT

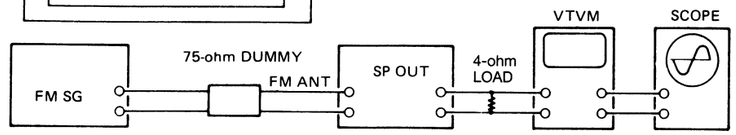
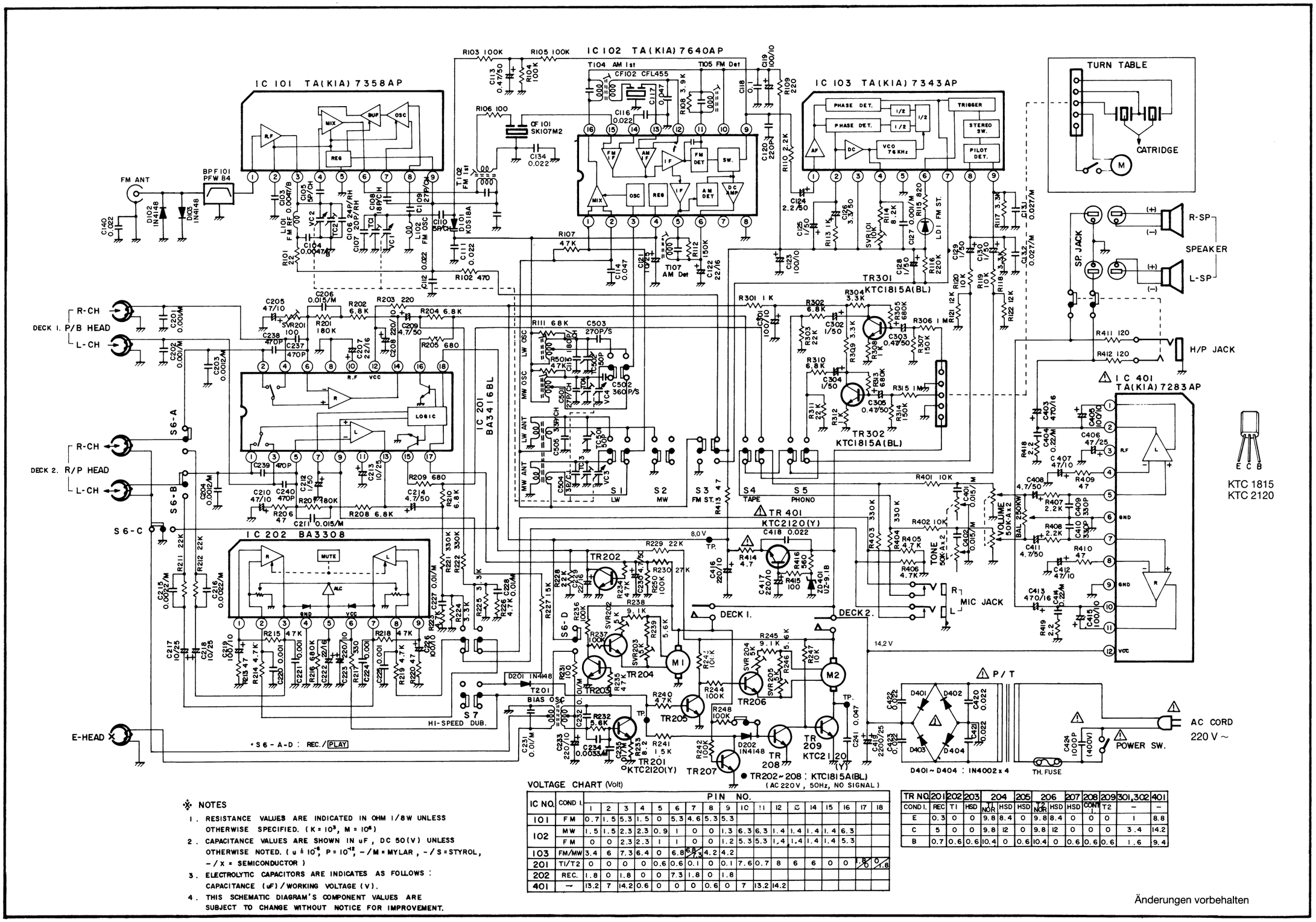


Figure 4. FM BAND, TRACKING

3. FM MPX ADJUSTMENT

CIRCUIT TO BE ADJUSTED	MEASURING INSTRUMENT ARRANGEMENT	STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	ADUSTMENT
19 kHz	Frequency counter connect to MPX IC 3 pin No. 12	1	No need	No need	First make sure FM section is properly aligned. Adjust VR1, 10 KB until frequency counter reads 19 kHz.

Schaltbild
Circuit diagram



NOTES

1. RESISTANCE VALUES ARE INDICATED IN OHM 1/8W UNLESS OTHERWISE SPECIFIED. (K = 10^3, M = 10^6)
2. CAPACITANCE VALUES ARE SHOWN IN uF, DC 50(V) UNLESS OTHERWISE NOTED. (u = 10^{-6}, P = 10^{-12}, -/M = MYLAR, -/S = STYROL, -/X = SEMICONDUCTOR)
3. ELECTROLYTIC CAPACITORS ARE INDICATES AS FOLLOWS : CAPACITANCE (uF) / WORKING VOLTAGE (V).
4. THIS SCHEMATIC DIAGRAM'S COMPONENT VALUES ARE SUBJECT TO CHANGE WITHOUT NOTICE FOR IMPROVEMENT.

VOLTAGE CHART (Volt)

IC NO.	COND I.	PIN NO. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
101	FM	0.7	1.5	5.3	1.5	0	5.3	4.6	5.3	5.3									
102	MW	1.5	1.5	2.3	2.3	0.9	1	0	0	1.3	6.3	6.3	1.4	1.4	1.4	1.4	6.3		
	FM	0	0	2.3	2.3	1	1	0	0	1.2	5.3	5.3	1.4	1.4	1.4	1.4	5.3		
103	FM/MW	3.4	6	7.3	6.4	0	6.8	6.8 / 7.3	4.2	4.2									
201	TI/T2	0	0	0	0	0.6	0.6	0.1	0	0.1	7.6	0.7	8	6	6	0	0	1.8 / 0	0 / 1.8
202	REC.	1.8	0	1.8	0	0	7.3	1.8	0	1.8									
401	—	13.2	7	14.2	0.6	0	0	0	0.6	0	7	13.2	14.2						

TR NO	201	202	203	204		205	206		207	208	209	301, 302	401
COND I.	REC	T1	HSD	T1 NOR	HSD	HSD	T2 NOR	HSD	HSD	CONT	T2	—	—
E	0.3	0	0	9.8	8.4	0	9.8	8.4	0	0	0	1	8.8
C	5	0	0	9.8	12	0	0	0	0	0	0	3.4	14.2
B	0.7	0.6	0.6	10.4	0	0.6	10.4	0	0.6	0.6	0.6	1.6	9.4

Änderungen vorbehalten

Technical modifications reserved

Explosionsdarstellung Gesamtgerät
Exploded view whole unit